

EDITORIAL

Hymenoptera sting in the head and neck region and severe allergic reactions

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The article entitled “Hymenoptera sting in the head and neck region is not a risk factor for grade IV systemic reactions in patients with venom allergy,” published in the current issue of the *Polish Archive of Internal Medicine (Pol Arch Intern Med)* by Cichocka-Jarosz et al,¹ is an interesting study undermining the general knowledge that a Hymenoptera sting in the head or neck is related to a more severe systemic anaphylactic reaction, as compared with a sting in the other parts of the body. Obviously, insect sting allergy is an important problem for internists, because it has been recognized as the most common cause of anaphylaxis in adults, affecting up to 7.5% of them,^{2,3} and 56.6% to 94.5% of the population has been stung at least once in their lifetime.³ Death from anaphylactic shock after sting represents 20% of deaths due to anaphylactic shock from any reason.^{2,3}

The article is interesting particularly because of a common belief, shared also by family doctors and medical students, that a sting in the head or neck is life-threatening. Indeed, in 1990, a sting in the head region was postulated by Mueller et al⁴ as a risk factor for a fatal outcome. However, authors of more recent publications did not share such an opinion.⁵⁻⁷ Thus, more large epidemiological studies are needed to verify this hypothesis.

In the current report, Cichocka-Jarosz et al¹ analyzed 195 patients (109 adults and 86 children), aged 2 to 74 years, treated with venom immunotherapy owing to at least grade II systemic anaphylactic reaction based on the 4-grade classification system by Mueller.⁴ Surprisingly, the authors demonstrated that the head and neck was the most common site of Hymenoptera insect stings (about 30% of the study group), but this site was not related with a more severe allergic reaction. On the other hand, they found a higher risk of grade IV systemic reactions in individuals living in the village and in adults (30 years or older). The results of the study are in line with other observations. Stoevesandt et al⁶ identified

4 significant indicators or risk factors for severe anaphylaxis in Hymenoptera venom allergy, such as elevated baseline serum tryptase levels, absence of angioedema or urticaria during anaphylaxis, less than 5 minutes from the sting to the first symptom onset, and advanced age. Advanced age, higher baseline serum tryptase levels, and the absence of skin symptoms after exposure to venom were also noted as the risk factors of more severe sting-related systemic reactions by Arzt et al,⁵ as opposed to sex, sting site, and venom type.

Cichocka-Jarosz et al¹ concluded that patients who were stung in the head or neck region should not immediately use adrenaline as self-medication, but rather the decision should be postponed based on the further progression of clinical symptoms.¹ However, the main study results should be interpreted with caution. As stated by the authors, it has been demonstrated that even a large local reaction due to a sting, which is a common clinical presentation of Hymenoptera venom allergy,³ if localized in the mouth or tongue region, might still be potentially fatal due to upper respiratory tract edema not related to systemic anaphylactic symptoms. Thus, it might require an immediate and aggressive medical intervention.⁸ In the present study, only 2 individuals were stung in the mouth region, and in both cases, this resulted in very severe systemic reactions.¹ This observation suggests that a sting in the mouth area should be treated with greater caution than those in the other skin regions of the head.

Another critical comment on the study is that the elderly patients were underrepresented in the adult population at a mean (SD) age of 41.08 (14.62) years. These individuals are characterized by numerous comorbidities, including cardiovascular diseases, which increase the risk of dying from a sting.³ They are also frequently treated with β -blockers, which worsen the course of anaphylaxis.^{3,7} Considering that the most severe

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TABLE 1 Safety rules for avoiding Hymenoptera stings during the flight period of insects

1	Do not eat or keep food outside.
2	Avoid walking barefoot outdoors.
3	Wear shoes that cover the entire foot.
4	Avoid accumulation of garbage close to the house.
5	Do not take out the trash yourself. Ask someone to assist you.
6	Avoid eating out in bars or restaurants.
7	Avoid eating outdoors.
8	Avoid visits to open-air markets.
9	Avoid opening windows and doors.
10	Install insect nets on the windows.
11	Use insect sticky trap at home.
12	Do not use fragrances indoors.
13	Avoid using cosmetic fragrances.
14	Do not use scented laundry powders and liquids.
15	Avoid wearing clothes that are intense or pastel in color.
16	Do not keep fresh flowers in the house.
17	Avoid consuming alcohol indoors and outdoors.
18	Do not hang laundry outdoors.
19	Avoid using public toilets.
20	Wear skin-covering clothes (long sleeves, long trousers, hat, etc).

anaphylactic reactions occur in the elderly population, it might be speculated that senior patients with Hymenoptera venom allergy might require a different approach after head or neck stings. Unfortunately, such individuals were almost not enrolled to the study, which does not allow any conclusions about the course of anaphylaxis in this group.

Finally, we would like to address another important aspect of Hymenoptera venom allergy, namely, the knowledge about anaphylaxis and adherence to the principles of preexposition prevention in sensitized individuals, their families, and in the general population. In 2015, we published a survey study that assessed the state of knowledge, quality of life, and anxiety level in 61 adult patients with Hymenoptera venom allergy (35 with allergy to the wasp venom and 26 with allergy to the bee venom), treated in the Department of Allergy and Clinical Immunology in Kraków.⁹ We demonstrated that almost all respondents admitted to have received accurate information on the anaphylaxis symptoms at least once; 83% of them ($n = 51$) carried an epinephrine emergency anaphylaxis kit during flight period of insects, but only 5 patients (8%) carried a bracelet or a card informing about their allergy. A particularly interesting result was obtained in this part of the survey that analyzed the impact of insect venom allergy on family relationships and the environment. Almost 90% of patients reported that their closest family members had a terrible fear of the next reaction to stings and would possibly not administer epinephrine to the patients. Moreover, only 10% of patients discussed the procedures in case of an anaphylactic reaction

with their relatives, because they “did not want to scare” them. They also pointed to the fear of social stigma. The same situation is observed in public schools, kindergartens, nurseries, and public offices, which was emphasized by the Polish Society of Allergology and related authorities. In this study, we also demonstrated that the majority of respondents (40%–100%) did not follow the fundamental principles of preexposition prevention rules, while some rules were not applied by any of the respondents.

In summary, basic knowledge about insect stings is lacking, which indicates the need for further education in primary care practice. Comprehensive care for patients with allergy to Hymenoptera venom must encompass not only the specific immunotherapy, but also education of patients and the general population. The key safety rules, which are recommended for patients and their families in our department, are presented in [TABLE 1](#). However, in our opinion, they should also be communicated to a large population, including nonallergic individuals, in order to popularize healthy behaviors that help avoid unwanted exposure to insect venom.

ARTICLE INFORMATION

DISCLAIMER The opinions expressed by the author are not necessarily those of the journal editors, Polish Society of Internal Medicine, or publisher.

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REFERENCES

- 1 Cichocka-Jaros E, Nittner-Marszalska M, Mól N, et al. Hymenoptera sting in the head and neck region is not a risk factor for grade IV systemic reactions in patients with venom allergy. *Pol Arch Intern Med.* 2019; 129: 160-166.
- 2 Worm M, Moneret-Vautrin A, Scherer K, et al. First European data from the network of severe allergic reactions (NORA). *Allergy.* 2014; 69: 1397-1404. [↗](#)
- 3 Sturm GJ, Varga EM, Roberts G, et al. EAACI guidelines on allergen immunotherapy: Hymenoptera venom allergy. *Allergy.* 2018; 73: 744-764. [↗](#)
- 4 Mueller U. Insect sting allergy. In: Mueller U, ed. *Insect sting allergy: clinical picture, diagnosis and treatment.* Stuttgart, Germany: Gustav Fischer; 1990.
- 5 Arzt L, Bokanovic D, Schwarz I, et al. Hymenoptera stings in the head region induce impressive, but not severe sting reactions. *Allergy.* 2016; 71: 1632-1634. [↗](#)
- 6 Stoevesandt J, Hain J, Kerstan A, et al. Over- and underestimated parameters in severe Hymenoptera venom-induced anaphylaxis: cardiovascular medication and absence of urticaria/angioedema. *J Allergy Clin Immunol.* 2012; 130: 698-704. [↗](#)
- 7 Worm M, Francuzik W, Renaudin JM, et al. Factors increasing the risk for a severe reaction in anaphylaxis: an analysis of data from The European Anaphylaxis Registry. *Allergy.* 2018; 73: 1322-1330. [↗](#)
- 8 Vaughan WC, Koch RJ. Airway obstruction caused by bee sting macroglossia. *Head Neck Surg.* 2000; 122: 778. [↗](#)
- 9 Nowak N, Bazan-Socha S, Pulka G, et al. Evaluation of the quality of life in subjects with a history of severe anaphylactic reaction to the Hymenoptera venom. *Pneumonol Alergol Pol.* 2015; 83: 352-358. [↗](#)